ERUGIN, N. P.

USSR (600)

Motion

Theorems on instability. Prikl. mat. i mekh. 16 no. 3, 1952 p.355

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

2

USSR/Mathematics - Nonlinear Systems of Ordinary Differential Equations Jul/Aug 52

"The Analytical Theory of Nonlinear Systems of Ordinary Differential Equations," N. P. Yerugin, Leningrad

"Prik Matemat i Mekh" Vol XVI, No 4, pp 465-486

Considers from another standpoint the classical problem of Painleve concerning crit removable (singular) points of nonlinear differential eqs of the form $y'' = R(x,y,y')$, where R is a rational function in y' and algebraic in x,y. Namely, the

225T54

author considers the problem of existence of systems of the form $dx/dz = f_1(x,y,z)$, and $dy/dz = f_2(x,y,z)$, which do possess removable essentially singular points. Demonstrates sufficient conditions for this.

225T54

YERUGIN, N. P.

YERUGIN, N. P.

"A Problem from the Theory of the Stability of Systems of Automatic Regulation"

Prik. Mat. Mech. 16, 620-628, 1952.

YERUGIN, N. P.

PA 241T60

USSR/Mathematics - Differential Equations Nov/Dec 52

"Construction of the Entire Set of Systems of Differential Equations Which Possess a Given Integral Curve," N. P. Yerugin, Leningrad

"Priklad Matemat i Mekhan" Vol 16, No 6, pp 659-670

Considers the following system of differential eqs $dx/dt = Q(x,y)$, $dy/dt = P(x,y)$, where $w(x,y) = 0$ is the given integral curve. When the previously assigned integral curve is expressed in the following parametric form $w_1(x,y,t) = 0$, $w_2(x,y,t) = 0$. the author finds P and Q of the unknown system as functions of w_1 and w_2, besides x,y,t. Submitted 31 Mar 52.

241T60

...GIN, N. P.

Obzor rabot sovetskikh matematikov po teorii ustoychivosti dvizheniya v kn. A. M. Lyapunov, Bibliografiya (Review of Works of Soviet Mathematicians on the Theory of Motion Stability in the Book of A. M. Lyapunov, Bibliography), compesed by A. M. Lukomskaya edited by Academicialn V. I. Smirnov, published by the Academy of Sciences, USSR, Moscowo-Leningrad, pp. 89-96, 1953.

OTRADNYKH, F.P.; YERUGIN, N.P., professor, redaktor.

Mikhail Vasil'evich Ostrogradskii. Leningrad, 1953. 100 p. (MLRA 7:3)

(Ostrogradskii, Mikhail Vasil'evich, 1801-1861)

YERUGIN, N. P.

"Review of I. G. Malkin;s Book, "Theory of Motion Stability," Westn. LGU (Leningrad State University Herald,), Issue No. 5, pp. 123-127. 1953.

YERUGIN, N. P., (Leningrad)

USSR/Mathematics - Nonlinear Stability Jul/Aug 53

"Methods of A. M. Lyapunov and Problems of Stability in the Large," N. P. Yerugin, Leningrad

Priklad Matem i Mekhan, Vol 17, No 4, pp 389-400

Treats the problems of the asymptotic stability in the large of the stationary motions defined by the following system of eqs: $dx_k/dt = a_{1k}x_1 + \ldots + a_{nk}x_n + f_k$

276T77

$(x_1, \ldots x_n)$ where a_{ke} are constants, $k=1,\ldots,n$, and f_k/s goes to 0 as $s^2 = x_1^2 + \ldots + x_n^2$ goes to 0.

Presented 21 Apr 53.

USSR/Mathematics - Stability of motion

Card 1/1 : Pub. 85 - 11/12 FD-644

Author : Yershov, B. A. (Leningrad)

Title : A theorem on the stability of motion in the whole

Periodical : Prikl. mat. i mekh., 18, 381-383, May/Jun 1954

Abstract : Considers the system of equations $dx/dt = F(x,y)$, $dy/dt = f(s)$, where $s = ax-by$. Notes that this system was also studied by N. N. Krasovskiy, "Stability of motion in the whole under constantly acting disturbances," PMM, 17, No. 1, 1954. In the present work the author shows that the fact of asymptotic stability of the solution of system for any initial deviation can be established without certain restricting assumptions of N. N. Krasovskiy. Refers to related works of N. P. Yerugin in PMM, 1950-1952

Institution : --

Submitted : March 23, 1954

YERUGIN, N. P.

"Lyapunov Aleksandr Mikhaylovich, BSE (Bol'shaya Sovetskaya Entsiklopediya), Vol. 25, pp. 586-587, 1954.

MATVEYEV, Nikolay Mikhaylovich; LETOV,B.D., redaktor; YERUGIN,N.P., professor, doktor fiziko-matematicheskikh nauk, redaktor; GATAULLINA,A.S., tekhnicheskiy redaktor

[Methods of integrating ordinary differential equations] Metody integrirovaniia obyknovennykh differentsial'nykh uravnenii. [Leningrad] Izd-vo Leningradskogo univ., 1955. 655 p. (MIRA 9:3)

(Differential equations)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

YERUGIN, N. P.

"On the Theory of Implicit Functions," (report made during a Leningrad City Mathematical Seminar), UMN Kh, Issue No 4, pp. 198-200, 1955.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

FD-2650

USSR/Mathematics - Stability

Card 1/1 Pub. 85-9/16

Author : Yerugin, N. P. (Leningrad)

Title : Qualitative methods in theory of stability

Periodical : Prikl. mat. i mekh., 19, Sep-Oct 1955, 599-616

Abstract : In recent years methods have been developed to investigate problems of stability which are based on ideas relating to qualitative methods, although utilizing also the second method of Lyapunov; on the whole, however, these methods differ qualitatively from the strictly Lyapunov methods, and arise particularly in the study of problems of stability in the large, although investigations of this kind exist also in problems of local theory of stability (and in particular under conditions of asymptotic stability). The author considers in the present article works that have appeared in the period 1950-1954; namely, in those years occurred the qualitative shift in the methods for investigating problems of stability of motion, all of which were in large degree influenced by those problems encountered in the theory of automatic regulation. A total of 35 references, mostly in this journal (21) and DAN SSSR (5); one a Leningrad University dissertation (A. P. Tuzov, 1952), etc.

Submitted : March 28, 1955

FD-3100

USSR/Mathematics - Expansions

YERUGIN, N.P.

Card 1/2 Pub. 85 - 15/16

Author : Yerugin, N. P.

Title : Remark on the author's earlier work "Continuation of solutions of differential equations," ibidem, 15, No 1, 1951

Periodical : Prikl. mat. i mekh., 19, Nov-Dec 1955, 764

Abstract : In the earlier mentioned work the author demonstrated the following theorem: Let there be given the system of differential equations $dx_i/dt=f_i(x_1,\dots,x_n;t)$ $(i=1,\dots,n)$, where $f_i(x_1,\dots,x_n;t)$ is continuous in the open region $D(x_1,\dots,x_n)$; then each solution of the system as time t tends to T either tends to point M_0 of D or tends to the boundary of the region D (i.e. point $M(t)=M(x_1(t),\dots,x_n(t))$ as t tends to T is included in a neighborhood as small as desired of the boundary of the region D and does not go further from there). In May 1955 the author succeeded in obtaining photocopies from the German Democratic Republic of Mayerhofer's work ("Ueber die Enden der Integralkurven bei gewoehnlichen Differentialgleichungen," Monatshefte fuer Mathematik und Physik, Band 41, 1934, 183-187), which work was devoted a proof of this theorem and essentially coincided with the present author's formulation and demonstration except for Mayerhofer's extremely complicated terminology (which accounts

FD-3100

Card 2/2

for the theorem's not appearing until now in the literature on differential equations; e.g. it is not in the texts of E. Kampe or V. V. Stepanov, although they knew of Mayerhofer's work.).

Institution :

Submitted :

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

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APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

ERUGIN, N.P.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 112
AUTHOR ERUGIN N.P.
TITLE On periodic solutions of differential equations.
PERIODICAL Priklad. Mat. Mech. 20, (1956) 148-152
reviewed 7/1956

The results of J.Massera on periodic solutions of the system

$$\dot{x}_i = f_i(x_1,\ldots,x_n,t) \qquad i=1,\ldots n$$

with functions f_i being periodic in t are applied by the author for the determination of periodic solutions for non-periodic f_i. Furthermore the case is considered where f_i and the solution are both periodic, the periods, however, are incommensurable. Numerous examples for the case n = 2 are given.

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SOV/44-59-1-322

Translation from : Referativnyy zhurnal.Matematika,1959,Nr 1,p 60 (USSR)

AUTHOR: Yerugin, N.P.

TITLE: Analytic Theory of Non-Linear Systems of Ordinary Differential Equations

PERIODICAL: Tr. In-ta fiz. i matem. AN BSSR,1957,vyp 2, 235 - 248

ABSTRACT: A survey on the problems and methods of the analytic theory of differential equations referring to the question, whether the solutions of the differential equations possess movable singular points. At first the author enumerates questions which have been investigated by Painleve. In general features there are described the methods of Painleve which permitted him to separate equations of second order possessing no movable multiple and essentially singular points. Then some new problems and ways for their solution are marked. Especially described are methods of the author which permit : 1.) to separate a class of systems of 2 equations of first order, the solutions of which possess no movable essentially singular points (unique as well as multiple ones) 2.) to construct the solutions of such systems in the neighborhood of the movable singular points.

Card 1/1 A.F. Andreyev

YERUGIN, N.P., akademik

On the theory of Riccati's equation. Dokl. AN BSSR 2 no.9:359-362 O '58. (MIRA 12:7)

1.AN BSSR.

(Differential equations)

YERUGIN, N.P.

Theory of the Riccati equation. Inzh.-fiz.zhur. no.4:76-80 Ap '58. (MIRA 11:7)

1.Institut fiziki i matematiki AN BSSR, g.Minsk.
(Differential equations)

YERUGIN, N.P.

Work of Soviet mathematicians on the analytical theory of differential equations. Trudy Inst.fiz.i mat.AN BSSR no.3:62-71 '59. (MIRA 13:4)
(Differential equations)

YERUGIN, N.P., akademik

Structure of the solutions of an invariant linear system of differential equations. Dokl.AN BSSR 3 no.2:33-37 F '59. (MIRA 12:5)

1. AN BSSR.

(Differential equations)

YERUGIN, N.P.

Distribution in series according to the parameter of a function from the matrix. Dokl. AN BSSR 3 no.7:292-293 Jl '59. (MIRA 12:11)
(Differential equations, Linear)

YERUGIN, N.P.

Methods for investigating the stability of the proofs of linear systems of differential equations with nonperiodic coefficients containing a small parameter; (commentary on V.A. IAkubovich's work). Inzh.-fiz.zhur. no.2:115-127 F '59. (MIRA.13:7)
(Differential equations, Linear)

YERUGIN, N.P.; MATVEYEV, N.M.

Letter to the editor. Inzh.-fizh. zhur. no.12:130-131 D '60.
(MIRA 14:3)

(Differential equations)

S/170/60/003/02/24/026
B008/B005

AUTHOR: Yerugin, N. P.

TITLE: Methods of Investigating the Problems of Stability of Solutions of Linear Systems of Differential Equations with Aperiodic Coefficients Containing a Small Parameter (Remarks on the Paper by V. A. Yakubovich (Ref. 8))

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 2, pp. 115-127

TEXT: The author submits the paper by V. A. Yakubovich to a thorough critical review, and accuses the author of incorrectly dealing with the matter. By means of numerous examples he shows that Yakubovich pretended methods and theses of other research workers to be his own. As examples, he mentions papers by I. A. Lappo-Danilevskiy, F. F. Gantmakher, I. Z. Shtokalo, N. N. Bogolyubov, N. N. Krylov, N. G. Chetayev, Yu. A. Mitropol'skiy, A. A. Lebedev, as well as his own papers. There are 20 references, 19 of which are Soviet.

Card 1/1

YERUGIN, N.P.

Parameter expansion of irregular value of functions from a matrix. Dokl.AN BSSR 4 no.8:323-324 Ag '60. (MIRA 13:8)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.
(Functions)

YERUGIN, N.P.

Necessary and sufficient conditions for the existence of roots of equations located on a unit circumference. Dokl. AN BSSR 5 no.11: 483-485 N '61. (MIRA 15:1)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.
(Equations, Roots of)

YERUGIN, N.P.

Theory of reducible systems of ordinary linear differential equations. Dokl. AN BSSR 5 no.12:533-534 D '61. (MIRA 15:1)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.
(Differential equations, Linear)

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S/201/62/000/001/001/005
D251/D301

AUTHOR: Yerugin, N.P.

TITLE: Solving problems of the existence of bounded solutions of a system of linear homogeneous differential equations with periodic coefficients on the basis of integral substitution, Part II

PERIODICAL: Vestsi akademii navuk BSSR. Seryya fizika-tekhnichnykh navuk, no. 1, 1962, 5-12

TEXT: This article is a continuation of the author's previous work (Ref. 10: Vestsi AN BSSR. Seryya fiz-tekh. navuk, no. 4, 1961). The integral matrix X of the system

$$\frac{dX}{dt} = XP(t,\varepsilon),\ P(t,\varepsilon) = \sum_{k=0}^{\infty} P_k(t)\varepsilon^k, \qquad (1.1)$$

is considered, where the series converges for $|\varepsilon| < r$, and $P_k(t)$ is

Card 1/3

a continuous 2π-periodic n^{th}-order matrix. In the case when (1.1) is canonical, it is shown, by means of a theorem of A.M. Lyapunov (Ref. 14: Obshchaya zadacha ob ustoychivosti dvizheniya II (General Problem of Stability of Motion II) izd, AN SSSR, 1956) that X cannot have the property $X(t,\varepsilon) \longrightarrow \|0\|$ as $t \to \infty$. Theorem 1.1: In order that the integral matrix of the system (1.1) (supposed non-canonical) should be bounded and not tend rapidly to zero for small ε, it is necessary that the characteristic equation of the matrix $X(2\pi,0)$ should be recurrent. If this be so, and if the equation (2.3) of Ref. 10 [Abstracter's note: Equation not stated] has m distinct real solutions y, $|y| < 1$, then the integral matrix of (1.1) is bounded and does not tend rapidly to zero as $t \to \infty$. The conditions for the existence of a vanishing solution of (1.1) are discussed, following the method of I.S. Arzhanykh (Ref. 1: O novykh neravenstvakh ustoychivosti (On New Inequalities of Stability) Vsesoyuznaya mezhvuzovskaya konferentsiya po teorii i metodam rascheta nelineynykh elektricheskikh tsepey, Sb. dokladov, no. 7, Tashkent, 1960). The author then applies his method to solving the problem of N.A.

Solving problems of the existence... S/201/62/000/001/001/005
D251/D301

Artem'yev (Ref. 2: Izv. AN SSSR, seriya matem, v. 5, no. 2, 1941, vol. 8, no. 2, 1944). It is shown that, in certain cases, one of the formulae arising in the solution of Artem'yev's problem will give the system discussed by V.A. Yakubovich (Ref. 17: Vestnik Leningradskogo universiteta, seriya matem., mekh. i astron, no. 13, 1958, p. 37). In the case when P is quasi- or nearly-periodic with respect to time it is stated that the methods of I.Z. Shtokalo (Ref. 15: Matem. sb., v. 18, no. 2, 1946; Ref. 16: Linenynyye differentsial'nyye uravneniya s peremennymi koeffitsientami, Izd. AN USSR, 1960) may be used. In conclusion the author states that these problems need further detailed discussion. There are 18 references: 17 Soviet-bloc and 1 non-Soviet-bloc.

Card 3/3

YERUGIN N. P.,

"Periodic limited solutions of linear differential equations"

Report presented at the Conference on Applied Stability-of-Motion Theory and Analytical Mechanics, Kazan Aviation Institute, 6-8 December 1962

YERUGIN, N.P.

Periodic solutions to a linear homogeneous system of differential equations. Dokl. AN BSSR 6 no.7:407-410 Jl '62. (MIRA 16:8)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.
(Differential equations)

PHASE I BOOK EXPLOITATION SOV/6520

Yerugin, Nikolay Pavlovich

Lineynyye sistemy obyknovennykh differentsial'nykh uravneniy s periodicheskimi i kvaziperiodicheskimi koeffitsientami (Linear Systems of Ordinary Differential Equations with Periodic and Quasi-Periodic Coefficients) Minsk, Izd-vo AN BSSR, 1963. 271 p. 3000 copies printed.

Ed. of Publishing House: S. Kholyavskiy; Tech. Ed.: I. Volokhanovich.

PURPOSE: The book is intended for a broad group of mathematicians: scientific workers, physicists, engineers, and aspirants and senior students in mathematics.

COVERAGE: This book is devoted to a study of systems of linear (and partially of nonlinear) differential equations with periodic coefficients and quasi-periodic coefficients. Methods for proving the existence of and for constructing bounded, unbounded, and periodic solutions of such systems are presented. The importance

Card 1/10

to this study of the theory of linear systems of differential equations and of the methods developed by Lappo-Danilevskiy (theory of functions of matrices) is demonstrated. Lyapunov's methods and ideas are used. There are 97 references, 87 of which are Soviet.

TABLE OF CONTENTS:

Author: Yarullin, [illegible]

Title: Periodical and bounded solutions of the equation $\ddot{x} + [illegible]x = 0$, $p(t + 1) = p(t)$

[illegible] Polynomial [illegible] Type [illegible]
[illegible] Nauk, [illegible]

[illegible] refers to his previous paper [illegible]
[illegible]

$$p(\ldots,t) = \sum_{k=0}^{\infty} p_k(t)\varepsilon^k$$

[illegible] can be represented as series
[illegible] domain as [illegible].

[illegible]

YERUGIN, M.[IAruhin, M.]; IVANOV, A.[Ivanou, A.]; KEBO, N.[Keda, N.]

Uladzimir Ivanavich Krylou; on his 60th birthday and his 30 years in teaching and research. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.1:129 '63. (MIRA 16:4)

(Krylou, Uladzimir Ivanavich, 1903-)

YERUGIN, N.P.

Theory of implicit functions. Dokl. AN BSSR 7 no.1:5-8 Ja '63. (MIRA 17:1)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.

S/250/63/007/002/001/008
A059/A126

AUTHOR: Yerugin, N. P.

TITLE: On the radius of convergence of series representing the periodic solution of a linear system of differential equations as functions of parameters

PERIODICAL: Doklady Akademii nauk BSSR, v. 7, no. 2, 1963, 73 - 75

TEXT: It has been established that

$$x_1(t) = x_1(t, \alpha_1, \ldots, \alpha_\nu) = \sum_{k=0}^{\infty} a_k^{(1)}(t, \alpha_1, \ldots, \alpha_\nu)\varepsilon^k, \quad e = 1, \ldots, n \tag{10}$$

representing the periodic solution with the period $\omega = 2\pi m$ of the system

$$\frac{dX}{dt} = XP\ (t, \mu, \varepsilon) \tag{1}$$

where X is the integral matrix and $P(t, \mu, \varepsilon)$ the continuous periodic matrix

Card 1/2

with the period 2π with respect to t of the nth order, converge in the region

$$|\varepsilon| < \delta \tag{8}$$

of convergence of the series

$$\mu = \mu(\varepsilon) = \sum_{k=1}^{\infty} \mu_k \varepsilon^k \tag{6}$$

obtained from the equation

$$\Delta(\mu, \varepsilon) = |X(2\pi n, \mu, \varepsilon) - I\lambda| = 0, \lambda = 1. \tag{7}$$

ASSOCIATION: Institut matematiki i vychislitel'noy tekhniki AN BSSR
(Institute of Mathematics and Computing Engineering of the AS BSSR)

SUBMITTED: December 1, 1962

YERUGIN, N.P.

A.M. Letov's problem. Dokl. AN BSSR 7 no.9:577-579 S '63. (MIRA 17:1)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.

ACC NR: AP6036022 SOURCE CODE: UR/0376/66/002/010/1317/1332

AUTHOR: Yerugin, N. P.

ORG: Institute of Mathematics AN BSSR (Institut matematiki AN BSSR)

TITLE: On the theory of canonical systems

SOURCE: Differentsial'nyye uravneniya, v. 2, no. 10, 1966, 1317-1332

TOPIC TAGS: Hamilton equation, partial derivative, asymptotic property, polynomial, existence theorem, uniqueness theorem, integral equation, periodic function

ABSTRACT: The following system of Hamilton equations is examined:

$$\dot{x} = \frac{dx}{dt} = -\frac{\partial H_0(x, y)}{\partial y}, \quad \dot{y} = \frac{dy}{dt} = \frac{\partial H_0(x, y)}{\partial x},$$

where

$$H_0(x, y) = \frac{\lambda}{2}(x^2 + y^2) + P(x, y),$$

$$P(x, y) = \sum_{m=3}^{\infty} P_m(x, y),$$

and $P_m(x, y)$ is a homogeneous polynomial of the m-th degree. This series converges in

Card 1/2 UDC: 517.916.925

ACC NR: AP6036022

the vicinity of the coordinate origin. The following perturbing system is introduced:

$$H = H_0(x, y) + P(x, y, t), \quad P(0, 0, t) = 0,$$

$$\dot{x} = -\frac{\partial H_0}{\partial y} - \frac{\partial P}{\partial y}, \quad \dot{y} = \frac{\partial H_0}{\partial x} + \frac{\partial P}{\partial x}.$$

It is shown that there exist perturbations P(x, y, t) such that the stationary point (0, 0) of the system will be stable, asymptotically stable, or unstable. In this case, P(x, y, t) may or may not be a function of t. But P(x, y, t), or its partial derivatives, will have a finite discontinuity along some curve, although both P(x, y, t) and its partial derivatives can be small on an order greater than any positive power of $x^2 + y^2$ when $x^2 + y^2 \to 0$. It is shown that the system

$$\dot{x} = -\frac{\partial H_0}{\partial y}(1 + \Phi(H_0, t)), \quad \dot{y} = \frac{\partial H_0}{\partial x}(1 + \Phi(H_0, t))$$

is canonical with

$$H(z, t) = z + \int_0^z \Phi(z, t)\, dz, \quad z = H_0.$$

and has the integral

$$H_0(x, y) = c^2;$$

therefore the stationary point x = y = 0 of this system will be unasymptotically stable, and the integral curves will be closed in the vicinity of the coordinate origin. Orig. art. has: 75 formulas.

Card 2/2 SUB CODE: 12/ SUBM DATE: 01Sep66/ ORIG REF: 006

YERUKH, P.M.

Checking and restoring the flow passage capacity of band filters. Mekh.sil'.hosp. 8 no.9:23-25 S '59. (MIRA 13:1)

1. Glavnyy inzhener Luganskogo oblastnogo upravleniya sel'skogo khozyaystva.
(Filters and filtration)

YERUKH, P.M. [IErukh, P.M.]

Suggestions of Luganek machinery operators for efficiency improvement. Mekh. sil'. hosp. 11 no.6:15-17 Je '60. (MIRA 13:11)

1. Glavnyy inzhener Luganskogo oblupravleniya sel'skogo khozyaystva.
(Luganek Province --Agricultural machinery)

YERUKH, P.M. [IErukh, P.M.], inzh.

Proposals by the Lugansk Province efficiency promoters. Mekh. sil'. hosp. 14 no.8:30-32 Ag '63. (MIRA 17:1)

1. Luganskoye oblastnoye ob"yedineniye "Sil'gosptekhnika".

YEKUKH, P.N., inzhener.

Drying corncobs. Nauka i pered.op. v sel'khoz. 7 no.8:40-42 '57. (MIRA 10:9)

1. Voroshilovgradskoye oblastnoye upravleniye sel'skogo khozyaystva.
(Corn (Maize)--Drying)

SOV/91-59-7-3/21

8(6).14(6), 28(1)

AUTHOR: Bernatovich, V.I., Engineer and Matusov, A.I., Foreman and Yerukhimov, A.S., Technician

TITLE: The Conversion of the Thermal Power Plant Fuel Feed System to Semi-Automatic Operation

PERIODICAL: Energetik, 1959, Nr 7, pp 8-9 (USSR)

ABSTRACT: The authors describe briefly the conversion of the fuel feed system to semi-automatic operation at one of the "Lenenergo" thermal power plants. During summer, about 3,000 tons of peat are consumed by this power plant, while 5,500 tons are required during winter. All fuels feed mechanisms are operated by ac and are controlled from one switchboard as shown in Fig.1, Instead of four operators, only one man is needed with the semi-automatic system. The conversion to semi-automatic operation was developed by the authors and was performed by employees of the power plant at a cost of 60,000 rubles. The authors state that the

Card 1/2

SOV/91-59-7-3/21

The Conversion of the Thermal Power Plant Fuel Feed System to Semi- Automatic Operation

conversion of the feed system to semi-automatic operation is important for increasing the reliability of the power plant's fuel supply. There are 1 photgraph and 1 diagram

Card 2/2

33216

S/141/61/004/006/001/017
E032/E114

3,1730 (1126, 1127, 1172)

AUTHORS: Belikovich, V.V., Benediktov, Ye.A., and Yerukhimov, L.M.

TITLE: Results of observations of the discrete source Cygnus-A at large zenith angles

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.4, no.6, 1961, 993-1003

TEXT: This paper was first read at a conference of MV i SSO SSSR on radioelectronics at Khar'kov in 1960. The authors report results of measurements of the relative intensity of the radio emission due to the Cyg-A source on 29.7 Mc/sec which were carried out at Gor'kiy in 1959-1960. The results correspond to zenith angles of the order of 80°. The interferometer employed had a base length of 20λ, and a beamwidth at half power points was 11° and 13° in the horizontal and vertical planes respectively. Signals from the rhombic antennas were passed through a pre-amplifier and separate mixers with a common heterodyne operating on a frequency of 6.5 Mc/sec. One of the heterodyne channels contained an electronic phase

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Results of observations of the ... S/141/61/004/006/001/017
E032/E114

reversing switch (operating at 29 cps). The mixers were followed by an i.f. amplifier with a passband of 10 Kc/sec, a square law detector and a heterodyne filter linked with the phase reversing switch. The signals were recorded by a pen recorder with a time constant of 3 sec and a chart speed of 720 mm/r. Fig.3 shows the results obtained during the entire period of observations. Arrows indicate those cases where the radio rise of the source was noted during the observations. The arrows pointing in the downward direction represent radio setting of the source. It is clear from Fig.3 that there is a very considerable spread in the intensity of the source. Analysis of these results has shown that the reduction in the signal level during magnetically quiet days was due to the usual absorption mechanism involving electron-ion and electron-molecule collisions. The reduction in the intensity is well correlated with the degree of magnetic disturbance, particularly at night during winter months. During this period considerable phase distortions were also observed. The variation in the intensity is closely related to the scattering of radio waves by electron density irregularities in the upper layers of

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E032/E114

Results of observations of the ...

the ionosphere. It is suggested that the explanation of the anomalous effects during magnetoactive days should be sought in the interaction between corpuscular streams and the ionosphere near and above the F-layer maximum.

Acknowledgments are expressed to G.G. Getmantsev for interest and assistance.

There are 8 figures, 3 tables and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The English language reference reads as follows: Ref.1: H.I.A. Chivers, I.S. Greenhow. J. Atm. Terr. Phys., v.17, 1, 1959.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute at Gor'kiy University)

SUBMITTED: March 8, 1961

Card 3/3

ARTEM'YEVA, G.M.; BELIKOVICH, V.V.; BENEDIKTOV, Ye.A.; YERUKHIMOV, L.M.; KOROBKOV, Yu.S.

Measurements of the absorption of cosmic radio emission during the solar eclipse of February 15, 1961. Geomag.i aer. 2 no.1:58-60 Ja-F '62. (MIRA 15:11)

1. Gor'kovskiy gosudarstvennyy universitet, Radiofizicheskiy institut.

(Cosmic rays) (Eclipses, Solar)

YERUKHIMOV, L.M.

Preliminary results of measurements of the height of ionospheric nonuniformities from signals from an artificial satellite. Geomag. i aer. 2 no.4:688-690 Jl-Ag '62. (MIRA 15:10)

1. Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete.
(Ionosphere) (Artificial satellites in meteorology).

43395

S/141/62/005/005/001/016
E032/E514

94120

AUTHOR: Yerukhimov, L.M.

TITLE: Studies of electron-density irregularities in the ionosphere by radio-astronomical and satellite methods. A review

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.5, no.5, 1962, 839-865

TEXT: This is a review of published experimental results covering the period 1949-1961 and based on 133 published references (29 Soviet references). The aim was to systematize these data and to compare them with the results obtained from studies of the upper layers of the Earth's atmosphere by other methods. Particular attention is given to the altitude distribution of irregularities responsible for fluctuations in cosmic radio signals and signals from artificial earth satellites, and also qualitative and quantitative properties of the irregularities at different latitudes. The material is reviewed under the following headings: 1. Methods of studying ionospheric irregularities with the aid of the radio emission of discrete sources and signals from artificial

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earth satellites.
2. Analysis of the diffraction pattern.
3. Diurnal and seasonal variations in the fluctuations; latitude dependence; relation with solar activity.
4. Relation between fluctuations and ionospheric parameters.
5. The height, dimensions and form of irregularities; electron density fluctuations in the ionosphere.
6. Drift of ionospheric irregularities.
7. Correlation with magnetic activity; irregularities in the polar and equatorial ionosphere.
8. Large-scale ionospheric irregularities.
9. Discussion of the experimental results.
The following conclusions are drawn from the review of the experimental data. 1) Irregularities responsible for fluctuations in the radio emission of discrete sources and artificial earth satellites are found mainly in the F-layer. However, irregularities at altitudes of the order of 100 km, and in particular, irregularities belonging to the E_{spor}-layer may exert an appreciable influence, particularly at large zenith angles.
2) A characteristic feature of the latitude dependence is the

presence of two regions of disturbance in the night ionosphere, which are located near the magnetic equator and in the auroral zone. 3) A difference in the distribution of irregularities on passing from daytime to night-time is observed at all latitudes. This difference is particularly clearly defined at equatorial latitudes at which daytime fluctuations in the radio emission of extra-terrestrial sources at ~50 Mc/s are absent. At the same time, fluctuations in signals reflected from the F_2-layer, which are observed while studying drifts in the equatorial ionosphere, suggest the presence of weak irregularities in daytime also. At night, irregularities responsible for fluctuations and diffuse reflections at the equator lie near and above the F_2-layer maximum. At moderate and high latitudes, there are also characteristic daytime fluctuations. At moderate latitudes, the night distribution of irregularities reaches altitudes of 400-500 km in a considerable part of the F-layer and a large contribution due to the observed fluctuations is due to irregularities at 200-300 km. Daytime fluctuations appear to be due to irregularities at altitudes below 200-250 km. In polar regions of the ionosphere, there are considerable numbers of irregularities throughout the day.

4) There is a tendency for the electron density irregularities to group themselves into local regions and these are responsible for fluctuations in the signals from discrete sources and artificial earth satellites and also for the diffuse nature of signals reflected from the F_2 layer. At moderate latitudes, these regions are elongated in the direction parallel to the geomagnetic latitude and their dimensions in this direction are of the order of 1000 km. The dimensions of these regions in the direction of the geomagnetic meridian are of the order of 200-400 km. Electron-density irregularities are elongated along magnetic lines of force and their linear dimensions at right-angles to the line of force are of the order of 0.5-1 km.

5) At moderate and high latitudes, there is a noticeable correlation between irregularity parameters and motions and magnetic disturbances. The correlation with the magnetic activity is reduced at daytime. A characteristic feature of equatorial latitudes is the presence of a negative correlation between irregularity parameters and drifts on the one hand, and the magnetic activity on the other hand, which is particularly clearly defined during the years of maximum solar activity.

Studies of electron-density ... S/141/62/005/005/001/016
E032/E514

It is suggested that further studies of the origin of irregularities in the F_2-layer will necessitate investigations of the altitude distribution of irregularity parameters and motions and their correlation with the magnetic activity and other geophysical phenomena. An important problem in this field is the study of the irregular structure of the ionosphere at altitudes well above the F_2-layer maximum. Another interesting topic is the relation between irregular phenomena in the ionosphere and processes in the earth's radiation belts. Further progress in this field will require more accurate measurements of the electron-density fluctuations in the ionosphere, their dimensions, form and motions. More detailed study of large-scale irregularities with dimensions of the order of hundreds or thousands of kilometres, which may be responsible for global changes in the upper atmosphere, are also necessary. There are 10 figures.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute of the Gor'kiy University)

Card 5/5

SUBMITTED: July 7, 1962

ARTEM'YEVA, G.M.; BELIKOVICH, V.V.; BENEDIKTOV, Ye.A.; YEREUKHIMOV, L.M.; ITKINA, M.A.; KOROBKOV, Yu.S.

Results of observations of intensity fluctuations of discrete sources at low frequencies. Geomag. i aer. 3 no.5:835-840 S-O '63. (MIRA 16:11)

1. Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete.

ACCESSION NR: AP4013141 S/0203/64/004/001/0075/0082

AUTHOR: Yerukhimov, L. M.

TITLE: Frequency correlation of fluctuations in radio emission of discrete sources caused by inhomogeneities in the ionosphere

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 1, 1964, 75-82

TOPIC TAGS: frequency correlation, ionosphere, radio emission, radio wave, F layer

ABSTRACT: The author has computed the frequency correlation in fluctuations of radio waves at arbitrary distances from the layer containing inhomogeneities, and he has investigated the problem of correlating between fluctuations in radio waves of different frequencies. He has obtained general formulas expressing the function of three-dimensional correlation of a variable field at different frequencies in a particular layer. The question of frequency correlation of field fluctuations during large disturbances in the wave phase in the layer has been studied. For large distances from the layer (in the Fraunhofer zone), an expression was found for the correlation function between fluctuations in the squares of diffracting

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ACCESSION NR: AP4013141

radio waves of different frequencies. The results have been used to determine the dimensions of inhomogeneities in the F layer, corresponding to fluctuations of discrete sources. "The author thanks G. G. Getmantsev and N. G. Denisov for their interest in the work and T. V. Borodacheva for her aid in the numerical computations." Orig. art. has: 3 figures and 26 formulas.

ASSOCIATION: Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete (Institute of Radiophysics at Gorkiy State University)

SUBMITTED: 04July63 DATE ACQ: 02Mar64 ENCL: 00

SUB CODE: AA NO REF SOV: 006 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

L 1324-66 EWT(1)/FCC/EWA(h) RD/GW/WS-4

ACCESSION NR: AP5021251 UR/0293/65/003/004/0584/0594
350.388.2

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B

AUTHOR: Yerukhimov, L. M.

TITLE: Altitude and dimensions of ionospheric inhomogeneities responsible for satellite signal fluctuations. I. Night time

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 4, 1965, 584-594

TOPIC TAGS: F layer, ionospheric inhomogeneity, ionosphere

ABSTRACT: The article presents the results of night measurements of F region inhomogeneities by Explorer-7, Discoverer-36, Cosmos-1, and Cosmos-2. The measurements were conducted during the winter and spring of 1962 and consisted in the recording of signal fluctuations at 20 Mc. In 414 observations, conducted primarily between 1900 hours and 0700 hours, it was found that inhomogeneity concentrations lay primarily in the 280—360-km range, very close to the maximum of the F-2 layer and diverging from it by not more than ±70 km. The study of inhomogeneity dimensions indicated that inhomogeneities have a group character, and the small-scale ones were observed to originate from the larger formations, which reached hundreds of kilometers. Inhomogeneities as large as 1 km were observed in the F-2 region, but most

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of them were in the 200—300-m range extending along the Earth's magnetic force lines. A correlation between the appearance of intense small-scale inhomogeneities and the diffusion of reflected signals from the ionosphere was noted. Orig. art. has: 7 figures, 1 table, and 5 formulas. [PW]

ASSOCIATION: none

SUBMITTED: 16Jul64 ENCL: 00 SUB CODE: ES, EC

NO REF SOV: 010 OTHER: 010 ATD PRESS: 4103

Card 2/2

L 2965-66 EWT(d)/FSS-2/EWT(1)/FS(v)-3/EPA(sp)-2/EEC(k)-2/FSS/EWA(d)/EWA(h)
ACCESSION NR: AT5023576 UR/0000/65/000/000/0147/0150

AUTHOR: Yerukhimov, L. M.; Mityakov, N. A.; Mityakova, E. Ye.

TITLE: Investigation of the ionosphere by the method of ground reception of radio signals from artificial earth satellites

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 147-150

TOPIC TAGS: ionosphere, ionospheric inhomogeneity, electron density, artificial satellite observation

ABSTRACT: A summary of research on the regular ionospheric structure, large-scale inhomogeneities of electron concentration, and small-scale ionospheric inhomogeneities is presented. The research in question has been conducted since 1961 using artificial earth satellites (Elektron-1 included). The regular structure of the ionosphere was studied by the measurement of the phase difference of coherent frequency signals (20—90 Mc) and the Faraday fading of 20-Mc signals from the satellites. According to data from Cosmos-1, Cosmos-2, and Explorer-7, electron concentration

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ACCESSION NR: AT5023576

as a function of the altitude of the satellite and the time of day was in the range $0.1—1.7 \times 10^{13}$ el/cm^2. The corresponding average value for the exponent index k was 6.2×10^{-3}/km. The index was determined from comparisons with vertical probing data under the assumption that the electron concentration above the F layer behaves exponentially. The measurements of large-scale inhomogeneities indicated that their dimensions range from a few kilometers to a few hundred kilometers. The gradient

$$\Delta \int_0^{z_0} \frac{\partial N}{\partial z} dz \approx 10^6 \text{ el/cm}^3$$

is independent of the nonuniformity dimension ℓ for $\ell > 100$ km. For $\ell < 100$ km, this gradient increases with ℓ. Small-scale inhomogeneities were determined from the fluctuation of signals received at three spatially dispersed antennas. It was established that they have a clearly expressed daily course, with the maximum occurring at night. They were observed primarily at 250—350 km and ranged in size from 1 to 2 km. Orig. art. has: 1 formula. [BD]

ASSOCIATION: none

SUBMITTED: 02Sep65 ENCL: 00 SUB CODE: ES, EC
NO REF SOV: 008 OTHER: 001 ATD PRESS: 4109

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910016-6"

L 32737-66 EWT(1)/FCC GW

ACC NR: AP6011711 SOURCE CODE: UR/0203/66/006/002/0400/0402

AUTHOR: Yerukhimov, L. M.

44
B

ORG: Radio Physics Institute, Gor'kiy State University (Radiofizicheskiy institut, Gor'kovskiy gosudarstvennyy universitet

TITLE: Effect of ionization gradients in a layer with irregularities on the value of the correlation of fluctuations at various frequencies

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 2, 1966, 400-402

TOPIC TAGS: atmospheric ionization, ionosphere, radio wave

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ABSTRACT: Usually when calculating the frequency correlation of radio waves in the ionosphere the latter is considered to be a plane-stratified medium, however in the ionosphere both regular and irregular horizontal ionization gradients are observed. The presence of horizontal gradients of ionization at a normal incidence of radio waves on the ionosphere leads to the appearance of refraction, the magnitude of which by virture of the dispersion properties of the medium will be different at different frequencies. This can lead to a change in the value of the correlation between the fluctuations of radio waves of various frequencies. Consequently in this article the author examines the normal incidence of a

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ACC NR: AP6011711

plane wave on a layer with irregularities which also contains large-scale ionization gradients, i.e., gradients the horizontal dimension of which appreciably exceeds the dimensions of small-scale irregularities. The author derives formulas for the wave field behind a layer with irregularities and the correlation functions of the fluctuating field of different frequencies in the presence of ionization gradients. Orig. art. has: 3 formulas.

SUB CODE: 04 / SUBM DATE: 31Mar65 / ORIG REF: 007

Card 2/2 JS

ACC NR: AP7013706

SOURCE CODE: UR/0203/66/006/004/0695/0702

AUTHOR: Denisov, N. G.; Yerukhimov, L. M.

ORG: Radio Physics Institute, Gor'kiy State University (Radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete)

TITLE: Statistical properties of phase fluctuations during complete reflection of waves from an ionospheric layer

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 4, 1966, 695-702

TOPIC TAGS: ionosphere, ionospheric radio wave, ionosphere inhomogeneity, geometric optics, atmosphere model, reflected signal, radio wave propagation

SUB CODE: 04

ABSTRACT:

This is a discussion of phase fluctuations and amplitude variations of a signal at the time of its reflection from a layer of the ionosphere. It is shown that the principal contribution to phase fluctuation is from the region of signal reflection. Specifically, the principal effect of distortion of the phase of a plane wave is determined by random inhomogeneities situated in a relatively thin layer near the reflection level. Under these conditions it can be assumed that

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the layer is equivalent to a phase screen and for computation of the change of phase of the wave on the screen it is possible to use the approximation of geometrical optics. Beyond the screen, in the process of wave propagation in free space, strong amplitude fluctuations arise which are registered by ground receivers. The frequency dependence of phase dispersion is considered for two models of the ionosphere. Formulas are derived which show that the character of the frequency correlation of amplitude records of the reflected signal is essentially dependent on the statistical properties of the phase fluctuations arising in an inhomogeneous layer. The results of the computations are used for explaining the experimental data. Orig. art. has: 3 figures and 33 formulas. [JPRS: 40,106]

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YERUKHIMOV, L.S.

Immediate and remote results of prostatectomy in a district hospital. Sov.med. 18 no.5:18 My '54. (MLRA 7:5)
(Prostate gland--Surgery)

YERUKHIMOV, L.S.

Injury of the inferior vena cava in nephrectomy. Urologiia 22 no.6: 59-60 N-D '57. (MIRA 11:2)

1. Iz Balashovskoy oblastnoy bol'nitsy.
(NEPHRECTOMY, compl.
inj. of inferior vena cava)
(VENAE CAVAE, wounds and inj.
perop. in nephrectomy)

YERUKHIMOV, L.S.

Treatment of urogenital actinomycosis. Urologiia 23 no.5:65-66 S-O '58 (MIRA 11:11)

1. Iz urologicheskogo otdeleniya (zav. L.S. Yerukhimov) Balashovskoy oblastnoy bol'nitsy.
(ACTINOMYCOSIS, therapy
urogenital (Rus))
(UROGNITAL SYSTEM, diseases
actinomycosis, ther. (Rus))

YERUKHIMOV, L.S.

Comparative evaluation of the functional capacity of the kidneys in adenoma of the prostate. Urologiia 24 no.5:14-18 S-O '59.
(MIRA 12:12)

1. Iz kafedry urologii (zav. - zasluzhenny deyatel' nauki prof. A.P. Frumkin) TSentral'nogo instituta usovershenstvovaniya vrachet i urologicheskogo otdeleniya bol'nitsy imeni S.P. Botkina.
(PROSTATIC HYPERTROPHY phusiol.)
(KIDNEY FUNCTION TESTS)

YeRUKHIMOV, L. S., Cand Med Sci —(diss) "Data for the surgery of adenoma of prostate gland," Moscow, 1960, 18 pp (First Moscow Medical Institute im I. M. Sechenov) (KL, 36-60, 117)

YERUKHIMOV, L.S.

History of prostatectomy in Russia. Urologiia no.6:51-56 '60. (MIRA 15:5)

1. Iz urologicheskoy kliniki TSentral'nogo instituta usovershenstvovaniya vrachey (zav. - zasluzhennyy deyatel' nauki prof. A.P. Frumkin).

(PROSTATE GLAND--SURGERY)

YERUKHIMOV, L.S., kand.med.nauk; ZOLOTTSEV, V.P.; KAGRAMANOV, S.V., kand.med.nauk

Drug therapy of cancer of the urinary bladder. Urologiia no.3: 54-58 '62. (MIRA 15:5)

1. Iz 62-y Moskovskoy gorodskoy bol'nitsy (glavnyy vrach V.D. Margolin, nauchnyye rukovoditeli prof. L.M. Nisnevich i prof. A.P. Frumkin).
(BLADDER—CANCER) (CYTOTOXIC DRUGS)

VERMEL', Ye.M.; VERUKHIMOV, L.S.

Chemotherapy of cancers of the genitourinary organs. Part 1: Tumors of the kidneys, the urinary bladder and the testicle. Vop. onk. 10 no.12:88-97 '64. (MIRA 18:6)

1. Iz Instituta nauchnoy i tekhnicheskoy informatsii AN SSSR i bol'nitsy No.62 Moskovskogo gorodskogo otdela zdravookhraneniya.

YERUKHIMOV, L.S., kand. med. nauk

Results of the use of nitrogen mustards in cancer of the bladder.
Urologiia no.6:41-45 N-D '63. (MIRA 17:9)

1. Iz urologicheskogo otdeleniya (zav. L.S. Yerukhimov) 62-y Moskovskoy gorodskoy onkologicheskoy bol'nitsy.

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SOV/117-58-9-25/31

AUTHORS: Mizinov, N.N., Frolov, F.F., Solodukho, I.G., Colonels of the Medical Corps, Candidates of Medical Sciences, Yerukhimov, M.L., Colonel of the Medical Corps, Shakurov, M.F., Lieutenant-Colonel of the Medical Corps

TITLE: Working Experience in Searching for Wounded Soldiers and Rendering First Aid to Them at Night

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, No 9, p 37 (USSR)

ABSTRACT: The authors give a short report on exercises in searching for wounded soldiers at night on broken terrain. As compared with similar exercises in daytime, the amount of time necessary to locate a wounded soldier increased by 40%, while 20% of the wounded were not found. This percentage of the missed wounded soldiers is over 3 times above the pertinent percentage in daytime. It is suggested that the search parties be numerically increased and equipped with flash-lights. Also, soldiers

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L 05813-67 EWT(1) LJP(c)

ACC NR: AP6031444 SOURCE CODE: UR/0056/66/051/002/0528/0535

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62
B

AUTHOR: Tavger, B. A.; Yerukhimov, M. Sh.

ORG: Gor'kiy State University (Gor'kovskiy gosudarstvennyy universitet)

TITLE: Nonlinear dependence of current on the electric field in a thin semiconducting film in a quantizing magnetic field

SOURCE: Zh eksper i teor fiz, v. 51, no. 2, 1966, 528-535

TOPIC TAGS: electric field, semiconducting film, matrix element, electron motion, electron scattering, strong magnetic field, electric current

ABSTRACT: Quantum transverse galvanomagnetic phenomena in a thin semiconducting film are investigated by the method of a density matrix. Quantization of transverse electron motion in the film is taken into account. Electron scattering is calculated by the perturbation theory. It is found that the dissipative current along the film depends on the applied electric field in a nonanalytic manner in the vicinity of zero, namely $I \sim \exp(-1/2\varepsilon^2)$ and, hence, in contrast to massive semiconductors, the Ohm law does not hold in a thin semiconducting film. A monotonous dependence of the current on the value of the magnetic field is obtained, whereupon

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ACC NR: AP6031444

the current decreases exponentially for strong magnetic fields. It is shown that the decrease of film thickness results in an increase of the dissipative current. The Hall current proves to be the same as that in a massive semiconductor. The authors thank the associates of the Department of Theoretical Physics, Gor'kiy State University for valuable discussions, and V. Metrikin and L. Paramonov for their help in calculations. Orig. art. has: 1 figure and 23 formulas. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 07Feb66/ ORIG REF: 004/ OTH REF: 004/

Card 2/2

YERUKHIMOVA, M. A.

1/

1 A

Electrolytic cleaning in alkaline solutions. R. S. Ashkenazi and M. A. Erukhimova. *Vestnik Metalloprom.* 16, No. 10, 82-4 (1936); *Chem. Zentr.* 1937, I, 5332.—The following compn. is given for an alk. soln. for use in the electrolytic removal of fats from brass objects: 15 g. NaOH, 10 Na_2CO_3, 5 Na_2HPO_4, 0.3 dextrin, in 1 l. water. The further addn. of tartrates is recommended. At a c. d. of 6-7 amps./sq. cm. the bath temp. should be 60-70°.
M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION